We claim:

1. A synthetic resin-impregnated body, comprising:

expanded or at least partially recompressed expanded graphite;

said graphite containing at least one of:

solvent-free, low-viscosity, storage-stable resin systems from the group of isocyanates with their co-reactants,

epoxy resins, and

polymers obtained by curing said resin systems.

2. The synthetic resin-impregnated body according to claim 1, wherein said epoxy resin system contains main components bisphenol-A-diglycidyl ether.

3. The synthetic resin-impregnated body according to claim 1, wherein said epoxy resin system contains main components bisphenol-F-diglycidyl ether.

4. The synthetic resin-impregnated body according to claim 1, wherein said epoxy resin system contains a component methylhexahydrophthalic anhydride.

5. The synthetic resin-impregnated body according to claim 1, wherein said epoxy resin systems contain a latent catalyst.

6. The synthetic resin-impregnated body according to claim 1, wherein said epoxy resin systems do not contain a latent catalyst.

7. The synthetic resin-impregnated body according to claim 1, wherein said resin systems are selected from the group of epoxides having a viscosity, at 50°C, of less than 200 mPa·s over a period of more than two days.

8. The synthetic resin-impregnated body according to claim 1, wherein said resin systems are selected from the group of epoxides having a viscosity, at 50°C, of 150 mPa·s and below over a period of more than two days.

9. The synthetic resin-impregnated body according to claim 1, wherein said resin systems are selected from the group of epoxides having a viscosity, at 50°C, of less than 200 mPa·s over a period of more than two weeks.

10. The synthetic resin-impregnated body according to claim 1, wherein said resin systems are selected from the group of

epoxides having a viscosity, at 50°C, of 150 mPa·s and below over a period of more than two weeks.

11. The synthetic resin-impregnated body according to claim 1, wherein said resin system contains a main component diphenylmethane diisocyanate.

12. The synthetic resin-impregnated body according to claim 1, wherein said resin system contains main components diphenylmethane diisocyanate and bis(4,4'-glycidyloxyphenyl)propane.

13. The synthetic resin-impregnated body according to claim 1, wherein said modified isocyanate resin systems contain at least one latent catalyst.

14. The synthetic resin-impregnated body according to claim 1, wherein said resin systems formed from the group of isocyanates with their co-reactants in said graphite impregnated with one of said resin systems have a storage stability at room temperature of more than two days.

15. The synthetic resin-impregnated body according to claim 1, wherein said resin systems formed from the group of isocyanates with their co-reactants in said graphite

impregnated with one of said resin systems have a storage stability at room temperature of more than two weeks.

16. The synthetic resin-impregnated body according to claim 1, including up to 50% by weight of at least one resin selected from the group consisting of isocyanates, isocyanurates, urethanes, polyurethanes and epoxides.

17. The synthetic resin-impregnated body according to claim 1, including 5 to 25% by weight of at least one resin selected from the group consisting of isocyanates, isocyanurates, urethanes, polyurethanes and epoxides.

18. The synthetic resin-impregnated body according to claim 1, including 10 to 20% by weight of at least one resin selected from the group consisting of isocyanates, isocyanurates, urethanes, polyurethanes and epoxides.

19. The synthetic resin-impregnated body according to claim 1, wherein a primary product contains fillers selected from the group consisting of ceramic electrically non-conductive, ceramic electrically conductive, mineral electrically non-conductive and mineral electrically conductive fillers.

20. The synthetic resin-impregnated body according to claim 1, including at least two independently held together

networks, one of said networks being formed of a connected framework made of expanded or of expanded and thereafter at least partially recompressed graphite having good electrical conductivity and good thermal conductivity, and the other of said networks being formed of a connected system made of synthetic material having penetrated into said graphite.

21. The synthetic resin-impregnated body according to claim 20, including resin systems selected from the group consisting of isocyanates and their co-reactants and epoxides only in regions close to the surface or in part of the body.

22. The synthetic resin-impregnated body according to claim 21, including cured polymer resin systems formed from one of said groups.

23. The synthetic resin-impregnated body according to claim 22, wherein a continuous resin surface film is not present and the body is electrically conductively contactable.

24. A process for producing a body containing at least one synthetic resin, which comprises:

providing a primary product made of expanded and at least partially recompressed expanded graphite with an open pore system;

impregnating the primary product with at least one solvent-free, low-viscosity and polymerizable resin system from at least one of: the group of isocyanates and their co-reactants; and epoxides, to form an uncured intermediate product, and converting the intermediate product into the B state; and

then subjecting the impregnated, uncured intermediate product in the B state to a curing treatment for the resin systems.

25. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises processing the intermediate product in the B state to form a shaped body and carrying out the curing treatment for the resin systems on the resin-containing, uncured shaped body produced from the uncured intermediate product.

26. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises simultaneously shaping and thermally curing the body impregnated with at least one resin system from at least one of the group of isocyanates with their co-reactants and epoxides.

27. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises

providing the primary product made of expanded or of expanded and at least partially recompressed expanded graphite with an open pore system and with an ash value of not more than four per cent.

28. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the primary product made of expanded or of expanded and at least partially recompressed expanded graphite with an open pore system and with an ash value of not more than two per cent.

29. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the primary product made of expanded or of expanded and at least partially recompressed expanded graphite with an open pore system and with a bulk density in a range of from 0.1 to 1.8 g/cm^3.

30. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the primary product made of expanded or of expanded and at least partially recompressed expanded graphite with an open pore system and with a bulk density in a range of from 0.3 to 1.5 g/cm^3.

31. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the primary product made of expanded or of expanded and at least partially recompressed expanded graphite with an open pore system and with a bulk density in a range of from 0.5 to 1.3 g/cm^3.

32. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises carrying out the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite with an open pore system with at least one of at least one resin system from the group of isocyanates with their co-reactants and epoxides.

33. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the epoxy resin systems with a viscosity, at 50°C, of less than 100 mPa·s.

34. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the epoxy resin systems with a viscosity, at 50°C, of less than 70 mPa·s.

35. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the isocyanate resins with their co-reactants with a viscosity, at room temperature, of less than 100 mPa·s.

36. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises providing the isocyanate resins with their co-reactants with a viscosity, at room temperature, of less than 50 mPa·s.

37. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises curing latently catalyzed resin systems from at least one of the group of isocyanates with their co-reactants and the group of epoxides in the body impregnated with the resins in less than two hours down to less than fifteen (15) minutes under the effect of temperatures between 120 and 180°C, and assigning a long curing time to a low temperature and a short curing time to a high temperature.

38. The process for producing a body containing at least one synthetic resin according to claim 37, which further comprises curing resin systems not containing latent catalysts from at least one of the group of isocyanates with their co-reactants and the group of epoxides in the body impregnated with resin in less then forty hours down to less than twenty-four hours

under the effect of temperatures between 120 and 180°C, and assigning a long curing time to a low temperature and a short curing time to a high temperature.

39. The process for producing a body containing at least one synthetic resin according to claim 24, wherein the primary product made of expanded or at least partially recompressed expanded graphite with an open pore system takes-up up to 100% by weight of its own weight of at least one of isocyanate and epoxy resin systems, during the impregnating operation.

40. The process for producing a body containing at least one synthetic resin according to claim 24, wherein the primary product made of expanded or at least partially recompressed expanded graphite with an open pore system takes-up 5 to 35% by weight of its own weight of at least one of isocyanate and epoxy resin systems, during the impregnating operation.

41. The process for producing a body containing at least one synthetic resin according to claim 24, wherein the primary product made of expanded or at least partially recompressed expanded graphite with an open pore system takes-up 10 to 25% by weight of its own weight of at least one of isocyanate and epoxy resin systems, during the impregnating operation.

42. The process for producing a body containing at least one synthetic resin according to claim 24, which further comprises mixing the expanded graphite with ceramic, electrically non-conductive or electrically conductive fillers, processing to form a filler-containing primary product and then impregnating with resin.

43. A sealing element, comprising:

a synthetic resin-impregnated body having expanded or at least partially recompressed expanded graphite; said graphite containing at least one of:

solvent-free, low-viscosity, storage-stable resin systems from the group of isocyanates with their co-reactants,

epoxy resins, and

polymers obtained by curing said resin systems.

44. A fuel cell component, comprising:

a synthetic resin-impregnated body having expanded or at least partially recompressed expanded graphite; said graphite containing at least one of:

solvent-free, low-viscosity, storage-stable resin systems from the group of isocyanates with their co-reactants,

epoxy resins, and

polymers obtained by curing said resin systems.

45. A heat-conducting element, comprising:

a synthetic resin-impregnated body having expanded or at least partially recompressed expanded graphite; said graphite containing at least one of:

solvent-free, low-viscosity, storage-stable resin systems from the group of isocyanates with their co-reactants,

epoxy resins, and

polymers obtained by curing said resin systems.